# 8.3 Area of Squares and Rectangles

**Goal** Find the area of squares and rectangles.

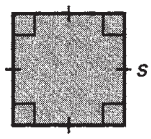
**VOCABULARY**

Area

**AREA OF A SQUARE**

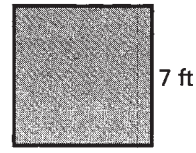
**Words** The area of a square is the square of the length of its _____.

**Symbols** $A = \_\_^2$




**Example 1** ***Find the Area of a Square***

Find the area of the square.




**Solution**

Use the formula for the area of a square and substitute ___ for s.

$A = s^2 = (\_\_)^2 = \_\_\_$

**Answer** The area of the square is ___ square feet.

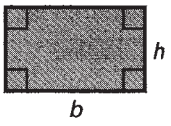
***Follow-Up***

Suppose you know that the area of a square is 49 square feet. What calculation can you perform to find the length of a side of the square?

**AREA OF A RECTANGLE**

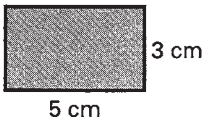
**Words** The area of a rectangle is the product of its _____ and _____.

**Symbols** $A = bh$




**Example 2** ***Find the Area of a Rectangle***

Find the area of the rectangle.




**Solution**

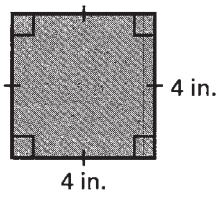
Use the formula for the area of a rectangle. Substitute ___ for $b$ and ___ for $h$.

$A = bh = (\_\_)(\_\_) = \_\_\_$

**Answer** The area of the rectangle is ___ square centimeters.

***Follow-Up***

Find the area of the figure at the right using the formula for the area of a square.




$A = \_\_^2 = \_\_^2 = \_\_\_$ square inches

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Find the area of the figure above using the formula for the area of a rectangle.

$A = \_\_\_ = \_\_ \cdot \_\_ = \_\_\_$ square inches

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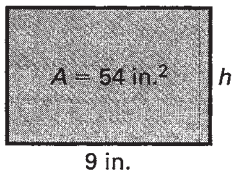
Why can you use either formula to find the area?

## Example 3 *Find the Height of a Rectangle*

The rectangle has an area of 54 square inches. Find its height.




**Solution**

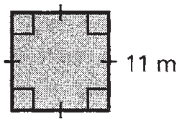
$A = \_\_h$ **Formula for the area of a rectangle**

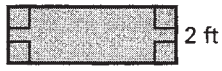
$\_\_\_\_ = (\_\_) \cdot h$ **Substitute ____ for *A* and __ for *b*.**

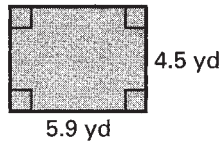
$\_\_ = h$ **Divide each side by __.**

**Answer** The height of the rectangle is _____.

**Checkpoint** **Find the area of the quadrilateral.**

**1.** 

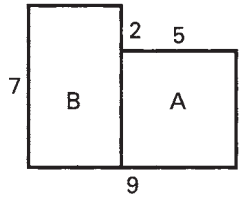

**2.** 


**3.** 


**4.** A rectangle has an area of 52 square meters and a height of 4 meters. Find the length of its base.

## Example 4 *Divide a Complex Polygon into Rectangles*

Find the dimensions of rectangles A and B.




**Solution**

**Rectangle A**

The base is __ units.

Because rectangle B is __ units taller than rectangle A, the height of rectangle A is __ − __ = __ units.

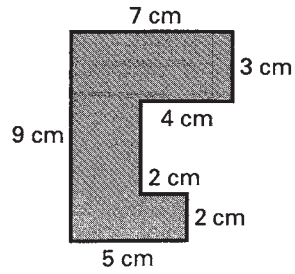
**Rectangle B**

The height is __ units.

The base of rectangle B is the total of both bases minus the base of rectangle A, or __ − __ = __ units.

**Example 5** ***Find the Area of a Complex Polygon***

Find the area of the polygon made up of rectangles.




**Solution**

Divide the polygon into three rectangles: F, G, and H.

Area F = ___ • ___ = ___ $cm^2$

Area G = ___ • ___ = ___ $cm^2$

Area H = ___ • ___ = ___ $cm^2$

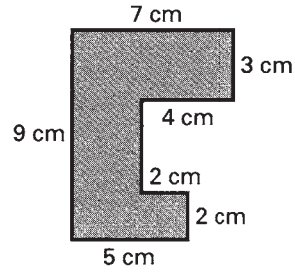
Total area = Area F + Area G + Area H

= ___ + ___ + ___ = ___

**Answer** The area of the polygon is ___ square centimeters.

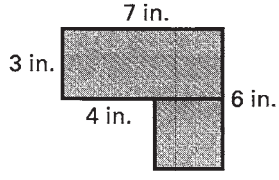
***Follow-Up***

In Example 5, divide the polygon into different rectangles to find the area. Label the diagram and show your work.




***Checkpoint*** **Find the area of the polygon made up of rectangles.**

**5.**




**6.**